Summary of CPUC Actions to Support Zero-Emission Vehicle Adoption

The CPUC supports the state's transition to zero-emission vehicles (ZEVs) within our purview as regulators of the state's electric investor-owned utilities (IOUs) – Pacific Gas and Electric (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), Liberty Utilities, PacifiCorp, and Bear Valley Electric Service. The CPUC has leveraged its expertise and experience in electric rate design, electric system infrastructure deployment, grid management, and safety to support ZEV deployment. The CPUC is working closely with other state agencies to ensure electric IOU investments to support ZEVs are in the interest of ratepayers. CPUC's activities fall into four main categories as described below:

- Electricity rates and costs of fueling
- Infrastructure deployment and incentives
- Vehicle-grid integration policy and pilots
- Evaluation and coordination

The CPUC opened its first rulemaking related to alternative-fueled vehicles in 2009 and has been increasing its efforts related to alternative-fueled and zero-emission vehicles in the past few years. The passage of SB 350 (de Leon, Chapter 547, Statutes of 2017) in 2015 directed the CPUC to work with the Energy Commission and the Air Resources Board to direct the electric IOUs to develop proposals to accelerate widespread transportation electrification. Much of the CPUC's current ZEV work is focused around SB 350 implementation.

All of the ZEV projects are selected through this rulemaking process. Thus far, the first step in project selection has been that IOUs propose investment programs to the CPUC for review. After stakeholders submit comments on the proposal(s), Energy Division staff evaluates the proposals based on their merits and their alignment with state policies and environmental targets. Staff also analyses whether the proposed budgets are appropriate, and whether the investments are in the interest of ratepayers, using information collected through the CPUC's public processes. Staff makes policy recommendations based on this analysis to Administrative Law Judges, who draft Proposed Decisions that CPUC Commissioners ultimately vote on to determine whether the utility programs, budget and implementation details are approved.

Electricity Rates and Costs of Fueling

Existing

Electricity rates for EV drivers

The CPUC has approved time-of-use energy rates for residential customers of PG&E, SCE, SDG&E and Liberty Utilities that drive electric vehicles (EVs) and charge at home. Time-of-use (TOU) rates are designed to provide price signals to customers about when it is to better to use electricity to optimize

the use of grid resources, maintain reasonable rates and reliability. The rates and TOU periods vary by utility, but generally, the rates are lowest overnight, allowing drivers enough time to charge their EVs while they are at home. These off-peak rates allow EV drivers to fuel their vehicle for less than the equivalent cost of gasoline. Appendix A of this document includes details of the currently-available EV rates offered by California IOUs.

Low Carbon Fuel Standard Rebates

In 2016, PG&E, SCE, and SDG&E began providing rebates to EV drivers through the state's Low Carbon Fuel Standard (LCFS).[1] EV drivers generate LCFS credits by using low-carbon fuel (electricity), and the utilities receive credits on behalf of their customers.[2] When the utilities sell the credits, they use the revenues to distribute rebates to their residential customers that drive an EV, effectively lowering a driver's cost to operate the EV. Current rebates are $500 and $450 for PG&E and SCE customers, and SDG&E customers receive an annual electric bill credit of at least $50/year up to $200 per EV.

New & Ongoing

In January 2018, the CPUC issued Decision (D.) 18-01-024,[3] approving the first round of transportation electrification proposals filed pursuant to SB 350 with a total budget of $42 million. This Decision also approved SDG&E to develop a "public grid integration rate" for limited use as part of its Green Shuttle Pilot described in the infrastructure section below. It also approved an SDG&E Dealership Incentives pilot for SDG&E to train car dealerships and provide them incentives if customers purchase an EV and sign up for an SDG&E EV rate.

In June 2018, the CPUC issued D.18-05-040[4] approving four new EV-specific rates:

- SDG&E's "residential grid integration rate" for participants of its residential charging rebate program to optionally choose to be on this dynamic rate, which varies daily based on pricing from the CAISO day-ahead electricity markets.

- SCE's three new commercial EV rates that offer a five-year holiday from monthly demand charges for customers that have adopted electric vehicles. Demand charges are charges to electric customers in addition to those for the electricity itself, used to recover fixed costs calculated based on a customer's maximum monthly demand and can increase significantly when customers start charging electric vehicles. The five-year holiday period is intended to offer customers time to develop load management plans to mitigate demand charges, which SCE will phase back in over five years starting in year six of the rate's availability. These three new rates, once implemented, will replace SCE's existing commercial EV TOU rates listed in the table above.

[1] Additional information on the CPUC's implementation of Low Carbon Fuel Standard rebates is available here: http://www.cpuc.ca.gov/zev/#Rebates.
[2] The California Air Resources Board calculates the number of credits generated and allocates the LCFS credits.
[3] Available here: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M204/K670/204670548.PDF.
[4] Available here: http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M215/K783/215783846.PDF.

Future

The CPUC will also consider ways that rate design can support the production of hydrogen for ZEV fueling, and additional rate designs proposed by the IOUs to support customers that are adopting electric vehicles while ensuring their charging behavior is beneficial to the grid.

Infrastructure Deployment and Incentives

Existing

Electric IOU charging infrastructure pilots to support light-duty[5] EVs

The CPUC in 2014 decided that it would review proposed programs from the IOUs to use ratepayer funding to invest in transportation electrification (TE) infrastructure on a case-by-case basis.[6] The three largest IOUs – PG&E, SCE, and SDG&E – filed applications in 2014 for investment programs to install light-duty electric vehicle charging stations at workplaces, apartment buildings, and some destination centers such as community colleges, golf courses, and resorts. The utilities' programs were approved in 2016[7] and are currently under implementation. Details about the light-duty infrastructure programs and their status are available in Appendix B of this document.

Each electric IOU convenes a program advisory council comprised of representatives from state agencies, ratepayer advocates, environmental justice groups, technology providers, automakers, and others to provide feedback and guidance on pilot design and implementation. The three electric IOU pilots will install the infrastructure to support up to 12,500 charging stations (mostly Level 2[8]) with total budgets up to $197 million.

NRG Settlement

The CPUC entered into a legal settlement agreement with NRG Energy to settle outstanding legal issues regarding the California energy crisis. EVgo is currently implementing the settlement requirements on behalf of NRG. The settlement requires NRG to invest more than $100 million in EV charging infrastructure in California:

- $50.5 million for 200 public fast charging stations

[5] Light-duty electric vehicles are passenger vehicles typically used by residential customers and fleets operated by workplaces, government agencies or transportation network companies.
[6] CPUC Decision (D.)14-12-079 available at http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M143/K682/143682372.PDF
[7] D.16-01-023 approved $22 million for SCE's Charge Ready program to install infrastructure and provide rebates for up to 1,500 charging stations at multi-unit dwellings, workplaces, and destination centers; D.16-01-045 approved $45 million for SDG&E's Power Your Drive program to install, own, and operate up to 3,500 charging stations at multi-unit dwellings and workplaces; and D.16-12-065 approved $130 million for PG&E's EV Charge Network program to install infrastructure and provide rebates for up to 7,500 charging stations at multi-unit dwellings and workplaces. PG&E is authorized to own and operate up to 35 percent of the charging states installed through EV Charge Network.
[8] Level 1 charging is plugging the EV into a standard 110-volt outlet to recharge the battery. Level 2 charging stations are connected to a 240-volt outlet and provide a faster charging option than Level 1.

- $40 million for 10,000 make-ready stubs (a portion of which could instead be allocated to DC fast charging plazas serving multifamily buildings)
- $5 million for research and development pilots
- $4 million to support underserved communities

New & Ongoing

In January 2018, CPUC approved several new electric IOU infrastructure pilots pursuant to SB 350 with budgets totaling $43 million.[9] Many of these pilots focus on deploying infrastructure:

- **SDG&E Airport Ground Support Equipment**: develop a plan to install charging infrastructure for various ground support equipment and integrate charging with onsite solar generation.
- **SDG&E Electrify Local Highways**: install and own 88 charge points: 20 Level 2 charging stations and two DC fast chargers at each of four Park-and-Ride locations.
- **SDG&E Port Electrification**: install and own approximately 30 charging stations and supporting infrastructure
- **SDG&E Fleet Delivery Services**: install and own charging infrastructure to support 90 delivery trucks
- **SDG&E Green Shuttle**: install and own Level 2 or DC fast charging to meet shuttle needs
- **SCE Residential Make-Ready Rebate**: up to 5,000 rebates for residential customers
- **SCE Urban DCFC Clusters**: up to 50 new DC fast charging ports for those who lack home charging
- **SCE Electric Transit Bus Make-Ready**: install make-ready charging infrastructure and provide rebate for charging station
- **SCE Port of Long Beach Pilots**: install make-ready charging infrastructure to support port equipment
- **PG&E Medium/Heavy-Duty Fleet Customer Demonstration**: install make-ready infrastructure and provide technical assistance, likely to a transit agency
- **PG&E Electric School Bus Renewables Integration**: install make-ready infrastructure for 2 to 5 school buses, and provide incentives to charge buses at times of day with excess renewable energy generation
- **PG&E Idle Reduction Technology**: develop a plan to demonstrate idle-reduction technologies for truck stop electrification or transport refrigeration units

As part of this decision, CPUC's Safety and Enforcement Division drafted a Safety Checklist for the electric IOUs to ensure their projects meet certain standards. This checklist will evolve overtime as the CPUC develops lessons learned and identifies additional safety needs.

In June 2018, the CPUC issued D.18-05-040, authorizing another $738 million in IOU infrastructure investments pursuant to SB 350[10]. PG&E and SCE were approved to spend $210 million and $343 million,

[9] Project summaries and budgets are available here: http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442455977.
[10] More information about the programs approved in D.18-05-040 is available at http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442457607.

respectively, to install infrastructure to support medium- and heavy-duty electric vehicles such as semi-trucks, transit and school buses, fleet delivery trucks, and port equipment. PG&E is also authorized to spend up to $22.4 million to install infrastructure for 234 direct-current fast-charging ports that will offer faster public charging options. SDG&E was approved to spend $137 million to offer rebates to residential customers that install charging stations at their homes.

For all of the programs approved under SB 350 to date, the three large IOUs are required to continue utilizing the program advisory councils that are already providing guidance on the implementation of their light-duty infrastructure programs.

The costs of the IOUs' TE programs (except those funded by LCFS revenues) are collected through electric distribution rates paid by all electric ratepayers in the utility's territory.

Future Work

SB 350 Implementation

As part of the SB 350 proceeding, the CPUC is also considering the following proposals from the smaller IOUs related to infrastructure deployment:

- **Bear Valley EV TOU Pilot Rate**: install make-ready infrastructure for residential and commercial EV customers to take service on a new time-of-use rate
- **Bear Valley Destination Make-Ready rebate**: provide rebates for the make-ready infrastructure for Level 2 charging at public destinations
- **Liberty Utilities DC Fast Charger Project**: deploy and operate DC fast charging stations
- **Liberty Utilities Residential Make-Ready Rebate**
- **Liberty Utilities Small Business Make-Ready Rebate**
- **Liberty Utilities Bus Infrastructure Program**: install and operate charging equipment for Tahoe Transit District electric buses
- **PacifiCorp Demonstration & Development Grant Program**: provide grants for non-residential charging installations

A decision on the smaller IOUs' infrastructure programs is expected to be issued in September 2018.

Additionally, in January 2018, SDG&E filed an additional application to support electrification of the medium- and heavy-duty transportation sectors. The CPUC began its review of this application in spring of 2018.

Assembly Bills 1082 and 1083 (Burke, Chapter 637 & 638, Statutes of 2017)

Assembly Bills 1082 and 1083 allow, but do not require, the electric IOUs to file applications to support charging infrastructure at schools and state parks and beaches, respectively. The bills required the electric IOUs to submit applications by July 30, 2018. The CPUC issued formal guidance to the electric IOUs regarding any applications they elect to submit pursuant to the bills and on July 30, 2018, received applications for programs with budgets totaling $53 million from four IOUs: Liberty, PG&E, SCE, and SDG&E.

Vehicle-Grid Integration Policy and Pilots

Existing

The CPUC, in collaboration with other state agencies, is developing policies that support vehicle-grid integration (VGI). VGI helps align EV charging with the needs of the electric system. To do this, EVs must have capabilities to manage charging or support two-way interaction between vehicles and the grid. In 2014, CPUC staff issued a VGI Whitepaper, and supported CAISO's development of the state's VGI Roadmap.

The CPUC has also overseen several electric IOU pilots to explore VGI applications, including demand response pilots using EVs to shift or curtail load.[11]

New & Ongoing

In 2017, CPUC staff initiated a public working group to assess whether the adoption of a communication protocol is necessary to enable VGI resources to more economically participate in electricity markets at scale.[12] More than 130 international experts participated in the working group process, which consisted of 15 facilitator-led meetings throughout 2017. Staff expects to finalize the Working Group report and recommendation in Q4 2018.

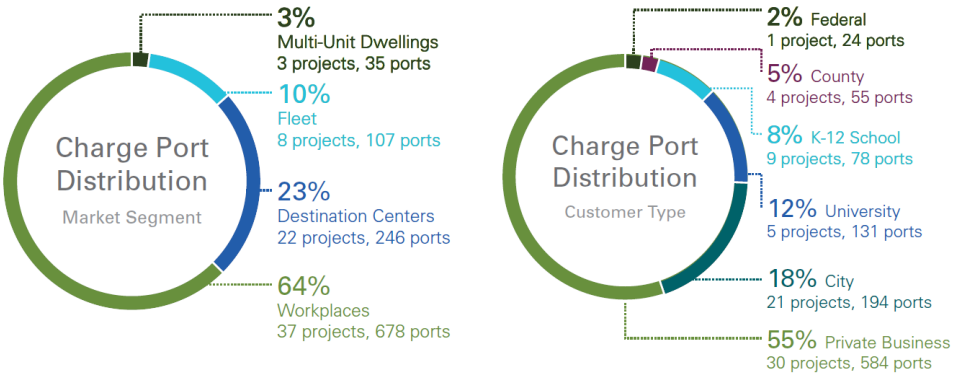
Future Work

CPUC will continue to support VGI efforts by participating in the VGI Roadmap update process, which the California Energy Commission will lead in the last half of 2018.

Evaluation and Interagency Coordination

The utilities are required to provide reports on their light-duty infrastructure investments described above on a quarterly or bi-annual basis. Reports include metrics like number of ports and sites installed and customers served by the installations, such as those shown in the following Figures:

[11] Additional pilot summaries are available here: http://www.cpuc.ca.gov/zev/#Pilot_Programs.
[12] Information about and deliverables from the working group are available at http://www.cpuc.ca.gov/vgi/.



Source: SCE Charge Ready Phase 1 Final Report[13]

The decisions approving the SB 350 programs adopted standardized data collection and reporting templates.[14] The data and information collected through these templates will be reviewed by an independent third-party evaluator. The metrics collected on thee more recently-adopted programs will also include charging station utilization rates; number of EVs adopted as a result of the program; avoided petroleum usage; and criteria air pollutant reductions.

CPUC ZEV staff also coordinates with various internal and external groups on ZEV policies.

California Air Resources Board and California Energy Commission

CPUC staff regularly engage with staff from CARB and the CEC to discuss ZEV initiatives. Coordination activities include regular meetings to discuss each agency's policies and programs to support ZEV charging infrastructure, forecasts of vehicle adoption, data collection efforts, and discussions of measuring the emissions reductions associated with state ZEV policies.

Veloz

CPUC Commissioner Peterman is a member of the Public Policy Board of Veloz, a California non-profit focused on outreach and education related to EVs. Veloz provides mass market education, and the CPUC's and utilities' outreach and education efforts complement this by providing outreach specific to utility programs and incentives for EVs.

Western Public Utilities Commissions' Joint Agency Framework on Climate Change

Utility regulatory agencies from California, Washington, and Oregon signed an MOU to work collaboratively to address climate change. The three states' utilities commissions began meeting in 2017 to develop a workplan for their collaboration, and expect to share case studies, best practices, lessons learned, and data with one another to improve understanding of the role of utilities and utility commission in promoting ZEVs.

---

[13] Available at https://www.sce.com/wps/wcm/connect/48270afc-aa77-4e4c-9cb1-bb2dcb8b5f66/5227_SCE_ChargeReadyReportSummary_r4-AA.pdf?MOD=AJPERES&attachment=false&id=1525298577774

[14] Data collection and reporting templates for the SB 350 programs are available at www.cpuc.ca.gov/sb350te

Internal CPUC coordination

CPUC staff working on ZEV issues regularly interact with other CPUC teams to ensure ZEV policies are integrated into the CPUC's larger electricity sector planning frameworks:

- Integrated Resource Planning
- Distribution Resource Planning
- Distributed Energy Resources Action Plan
- Electric Rate Design

Appendix A: Existing EV Rate Structures

PG&E Existing EV Rates (Residential)

EV-A
Residential
Whole-House: Must be eligible for E-1 and have a registered BEV or PHEV

On-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	2 p.m.	$ 0.47334	$ 0.32987
	End	9 p.m.		
Part-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	7 a.m.	$ 0.25994	$ 0.20417
	End	2 p.m.		
Part-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	9 p.m.	$ 0.25994	$ 0.20417
	End	11 p.m.		
Off-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	11 p.m.	$ 0.12753	$ 0.13046
	End	7 a.m.		

Demand Charge: N/A
Customer Charge: N/A (Minimum bill amount: $10/month)
Note: Weekend & holiday peak hours are 3 p.m. to 7 p.m., with off-peak all other hours.

EV-B
Residential
Separately metered - EV charging only

On-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	2 p.m.	$ 0.46665	$ 0.32274
	End	9 p.m.		
Part-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	7 a.m.	$ 0.25659	$ 0.20061
	End	2 p.m.		
Part-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	9 p.m.	$ 0.25659	$ 0.20061
	End	11 p.m.		
Off-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	11 p.m.	$ 0.12705	$ 0.12995
	End	7 a.m.		

Demand Charge: N/A
Customer Charge: $1.50/month
Note: Weekend & holiday peak hours are 3 p.m. to 7 p.m., with off-peak all other hours.

SCE Existing EV Rates

TOU-EV-3-A Rate Schedule
Commercial
EV-Only

On-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	Noon	0.36	0.16
	End	6:00PM		
Mid-Peak				
	8:00am-noon		0.17	0.14
	6:00pm-11:00pm			
Off-Peak				
	All other hours		0.09	0.10
Customer Charge (cents/day)			0.836	

TOU-EV-3-B Rate Schedule
Commercial up to 20kW/month
EV-Only

On-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	Noon	0.33	0.12
	End	6:00PM		
Mid-Peak				
	8:00am-noon		0.14	0.11
	6:00pm-11:00pm			
Off-Peak				
	All other hours		0.06	0.07
Customer Charge (cents/day)			0.836	
Demand Charge ($/kW/month)			$7.23	

SCE Existing EV Rates (continued)

TOU-EV-4 Rate Schedule
Commercial 20kW-500kW/month
EV-Only

On-Peak		Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	Noon	0.29	0.11
	End	6:00PM		
Mid-Peak				
	8:00am-noon		0.12	0.09
	6:00pm-11:00pm			
Off-Peak				
	All other hours		0.05	0.06
Demand Charge ($/kW/month)			$13.20	
Customer Charge ($/month)			$198.79	

TOU-EV-1 Rate Schedule
Residential
EV-Only

On-Peak		Hour	($/kWh)
	Start	Noon	0.37
	End	9:00PM	
Off-Peak			
	All other hours		0.13
Monthly Meter Charge ($/month)			$2.76

SDG&E's Existing EV Rates

EV-TOU						
Residential						
EV Only				Rates effective as of 1/1/18 - AL 3167-E		
On-Peak		Hours - Weekday Summer	Hours - Weekday March/April	Hours - Weekend/Holiday	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	4:00pm	4:00pm	4:00pm	0.53781	0.24799
	End	9:00pm	9:00pm	9:00pm		
Peak						
	Start	N/A	N/A	N/A	N/A	N/A
	End	N/A	N/A	N/A		
Off-Peak						
	Start	6:00am; 9:00pm*	6:00am; 2:00m; 9:00pm*	2:00pm; 9:00pm*	0.2861	0.23893
	End	4:00pm; midnight*	10:00am; 4:00pm; midnight*	4:00pm; midnight*		
Super Off-Peak						
	Start	Midnight	Midnight; 10:00am*	Midnight	0.22801	0.22887
	End	6:00am	6:00am; 2:00pm*	2:00pm		

* SDG&E's TOU Periods includes multiple instances of the same TOU Period within a given day. As such, the start time of each such period is listed in the "Start" row, and the end time of each such period is listed in the "End" row.

EV-TOU-2						
Residential						
Whole-House				Rates effective as of 1/1/18 - AL 3167-E		
On-Peak		Hours - Weekday Summer	Hours - Weekday March/April	Hours - Weekend/Holiday	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	4:00pm	4:00pm	4:00pm	0.53781	0.24799
	End	9:00pm	9:00pm	9:00pm		
Peak						
	Start	N/A	N/A	N/A	N/A	N/A
	End	N/A	N/A	N/A		
Off-Peak						
	Start	6:00am; 9:00pm*	6:00am; 2:00m; 9:00pm*	2:00pm; 9:00pm*	0.2861	0.23893
	End	4:00pm; midnight	10:00am; 4:00pm; midnight*	4:00pm; midnight*		
Super Off-Peak						
	Start	Midnight	Midnight; 10:00am*	Midnight	0.22801	0.22887
	End	6:00am	6:00am; 2:00pm*	2:00pm		

* SDG&E's TOU Periods includes multiple instances of the same TOU Period within a given day. As such, the start time of each such period is listed in the "Start" row, and the end time of each such period is listed in the "End"

EV-TOU-5
Residential
Whole-House

		Hours - Weekday Summer	Hours - Weekday March/April	Hours - Weekend/Holiday	Summer Prices ($/kWh)[1]	Winter Prices ($/kWh)[1]
On-Peak						
	Start	4:00pm	4:00pm	4:00pm	0.53019	0.24037
	End	9:00pm	9:00pm	9:00pm		
Peak						
	Start	N/A	N/A	N/A	N/A	N/A
	End	N/A	N/A	N/A		
Off-Peak						
	Start	6:00am; 9:00pm*	6:00am; 2:00m; 9:00pm*	2:00pm; 9:00pm*	0.27848	0.23131
	End	4:00pm; midnight*	10:00am; 4:00pm; midnight*	4:00pm; midnight*		
Super Off-Peak						
	Start	Midnight	Midnight; 10:00am*	Midnight	0.09317	0.09403
	End	6:00am	6:00am; 2:00pm*	2:00pm		

Customer Charge: $16.00

* SDG&E's TOU Periods includes multiple instances of the same TOU Period within a given day. As such, the start time of each such period is listed in the "Start" row, and the end time of each such period is listed in the "End" row.

[1] SDG&E's anticipates implementing its Schedule EV-TOU-5 on 7/1/18. SDG&E has filed its proposed rates in AL 3226-E.

Liberty Utilities Existing EV Rates (Residential)

TOU D-1 Time of Use Electric Vehicle Service
Residential Customers TOU Meters
Whole-House

On-Peak		Winter Hour	Summer Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	5:01PM	10:01AM	0.13872	0.14215
	End	10:00PM	10:00PM		
Mid-Peak					
	Start	7:01AM			0.13839
	End	5:00PM			
Off-Peak					
	Start	10:01PM	10:01PM	0.08146	0.08146
	End	7:00AM	10:00AM		

Customer Charge ($/month) $13.43

TOU D-1 Time of Use CARE Electric Vehicle Service
Residential CARE Customers TOU Meters
Whole-House

On-Peak		Winter Hour	Summer Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	5:01PM	10:01AM	0.12068	0.1238
	End	10:00PM	10:00PM		
Mid-Peak					
	Start	7:01AM			0.10911
	End	5:00PM			
Off-Peak					
	Start	10:01PM	10:01PM	0.06357	0.06357
	End	7:00AM	10:00AM		

Customer Charge ($/kW/month) $10.74

Liberty Utilities Existing EV Rates (Commercial)

TOU A-1 Time of Use Electric Vehicle Service
Small General Service Customers TOU Meters
Whole-Facility

On-Peak		Winter Hour	Summer Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	5:01PM	10:01AM	0.14468	0.15911
	End	10:00PM	10:00PM		
Mid-Peak					
	Start	7:01AM			0.14468
	End	5:00PM			
Off-Peak					
	Start	10:01PM	10:01PM	0.09359	0.09359
	End	7:00AM	10:00AM		
Customer Charge ($/kW/month)				$20.21	

A-3 Time of Use Electric Vehicle Service - Buses
Large General Service Customers TOU Meters - Buses/Stations
Bus Fleet Charging Stations

On-Peak		Winter Hour	Summer Hour	Summer Prices ($/kWh)	Winter Prices ($/kWh)
	Start	5:01PM	10:01AM	0.07306	0.06907
	End	10:00PM	10:00PM		
Mid-Peak					
	Start	7:01AM			0.06813
	End	5:00PM			
Off-Peak					
	Start	10:01PM	10:01PM	0.05523	0.05445
	End	7:00AM	10:00AM		
Demand Charge ($/kW/month)					
On-Peak				$13.12	$7.95
Mid-Peak					$2.99
Customer Charge ($/month)				$455.59	

SCE Recently-Approved Commercial EV-TOU Rates

TOU-EV-8
Large Power with Monthly Max Demand between 21 - 500 kW
EV-Only

TOU Period		2019-2023 All Energy Rate Year 5	2024 Year 6	2025 Year 7	2026 Year 8	2027 Year 9	2028 Year 10	2029+ Full FRD Rate Year 11
Summer On - $/kWh	4-9pm weekdays	$0.41816	$0.41131	$0.40447	$0.39762	$0.39077	$0.38393	$0.25882
Summer Mid - $/kWh	4-9pm weekends	$0.27718	$0.27034	$0.26349	$0.25664	$0.24980	$0.24295	$0.20051
Summer Off - $/kWh	All except 4-9pm all days	$0.12550	$0.11866	$0.11181	$0.10496	$0.09812	$0.09127	$0.10135
Winter Mid - $/kWh	4-9pm all days	$0.27801	$0.27116	$0.26432	$0.25747	$0.25062	$0.24378	$0.20134
Winter Off - $/kWh	9pm-8am all days	$0.13206	$0.12522	$0.11837	$0.11152	$0.10467	$0.09783	$0.11078
Winter Super-Off- $/kWh	8am-4pm all days	$0.08133	$0.07448	$0.06764	$0.06079	$0.05394	$0.04710	$0.05837
Customer Charge ($/Month)		$106.75	$106.75	$106.75	$106.75	$106.75	$106.75	$106.75
FRD ($/kW)		$0.00	$1.99	$3.99	$5.98	$7.97	$9.97	$11.96
% of Final FRD		0	16.67%	33.33%	50.00%	66.67%	83.33%	100.00%
FRD % Increase By Year			16.67%	16.67%	16.67%	16.67%	16.67%	16.67%

Illustrative rates as proposed in SCE's Electric Transportation (TE) Application (A.17-01-021) for implementation in early 2019
Rate levels reflect Jan. 1, 2017 revenue requirement and current 2015 GRC Phase 2 revenue allocations

NOTES:
Yr1 – Yr5: Energy only; No Demand Charges
Yr6 – Yr10: Phase-in Demand Charges
Yr11+: Return to Energy and Demand Charges (The distribution grid component after the 10-yr period will reflect only 60%, rather than 100%, of distribution costs, with the balance of distribution costs recovered through energy charges.

Appendix B. IOUs' Light-Duty Infrastructure Programs and Status

	SDG&E Power Your Drive	SCE Charge Ready	PG&E EV Charge Network
Program Status	2,617 charging stations installed as of March 2018	1,000th charging station installed in Q2 2018; requesting $22M in additional funding	Launched in early 2018; 80 charging stations installed as of June 2018
Scope	3,500 charging stations	1,500 charging stations	7,500 charging stations
Budget	$45M	$22M	$130M
Markets	multifamily, workplace	multifamily, workplace, public	multifamily, workplace
Disadvantaged Communities	≥10% charging stations in disadvantaged communities	≥10% charging stations in disadvantaged communities	≥15% charging stations in disadvantaged communities
Charger Ownership	SDG&E	Site host	Site host. PG&E ownership allowed only in multifamily or disadvantaged community up to 35%
Cost to host	Participant Payment	Rebate	Participant Payment or Rebate
Rates	Vehicle-grid integration rate to driver or host	Time-of-use rate to host	Time-of-use rate to driver or host
Regulatory Status	Approved Jan 2016 (CPUC Decision 16-01-045)	Approved Jan 2016 (CPUC Decision 16-01-023)	Approved Dec 2016 (CPUC Decision 16-12-065)